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Exterior Gateway Protocol Implementation Schedule

Status of this Memo

This memo is a policy statement on the implementation of the Exterior Gateway Protocol in the Internet. This is an official policy statement of ICCB and DARPA.

The Current Situation

Currently the Internet has a number of smart gateways and a number of dumb gateways. The smart gateways dynamically exchange routing information among themselves using the Gateway Gateway Protocol (GGP) [3]. The dumb gateways do not exchange routing information dynamically.

The dumb gateways must be listed in the smart gateway routing tables, and changes in dumb gateways status (e.g., adding new dumb gateways) in the smart gateways tables requires human intervention.

The amount of routing traffic between smart gateways depends on the number of smart gateways and the total number of networks. Since dumb gateways typically connect a single network at the edge of the Internet, there is typically one more network in the routing table for each dumb gateway.

Gateways that connect a single network to the edge of the Internet may be called "stub" gateways.

The current GGP procedures used by the smart gateways are at the limits of their capacity. A significant change to these procedures is urgently required. This is difficult to perform because the smart gateways are maintained by several different groups, and because it is difficult to isolate a subset of these gateways for testing new procedures.

The Future Situation

In the future, as it is currently envisioned, there will be a number of co-equal autonomous systems of gateways. Each as will have its own private internal procedures for maintaining routing information, perhaps via an Interior Gateway Protocol (IGP). The smartness of a gateway will be the smartness of the IGP used in the autonomous system the gateway participates in. Some gateways of each autonomous system will exchange routing informations with some gateways of other autonomous systems via an Exterior Gateway Protocol (EGP) [2].

The factoring of the old set of smart gateways into a number of autonomous systems allows more flexibility for the development and testing of improved routing procedures. Different autonomous systems can adopt different routing procedures internally, as long as they communicate with other autonomous systems via the EGP.

The Transition Situation

The first step in the transition from the current situation to the future situation is the replacement of all dumb gateways with gateways that implement at least a subset of the EGP.

This subset is called the "Stub Exterior Gateway Protocol", and is described in RFC-888 [1].

The second step is to factor the existing smart gateways into autonomous systems. The gateways programmed and maintained by different groups will become distinct autonomous systems. As things are, this will result in one fairly large autonomous system and three or four small autonomous systems. At this step the large autonomous system will be referred to as the "core" autonomous system. All other autonomous systems will be stubs attached to this core via EGP.

The third step is to specify the full EGP protocol, and to allow a rich connectivity between co-equal autonomous systems.

Policy Statement

After 1-Aug-84 there shall be no dumb gateways in the Internet. Every gateway must be a member of some autonomous system. Some gateway of each autonomous system must exchange routing information with some gateway of the core autonomous system using the Exterior Gateway Protocol.

Implication

If you have a dumb gateway now, you should start doing something today to get it upgraded to, or replaced by, an EGP gateway.

Help Available

There may be a gateway you can use already developed by someone. People at the following places are working on EGP gateways: BBN, MIT, Linkabit, ISI, Honeywell, and Symbolics. For more information send a message to Joyce Reynolds at mailbox "JKReynolds@USC-ISIF".

There are plans to provide EGP functionality in Berkeley 4.2 Unix.

Berkeley has indicated an intention to have EGP capability available in the standard release of 4.2 Unix before the cut off date for dumb gateways.

The is a mailing list for EGP implementers called "egp-people". To get on or off this list send a message to the mailbox "egp-people-request@BBN-UNIX".

There is a EGP testing program available on TOPS20. For information about using it send a message to Jim Mathis at mailbox "Mathis@SRI-KL".

If you need an autonomous system number send a request to Joyce Reynolds at mailbox "JKReynolds@USC-ISIF".

References

[1] Seamonson, L., and E. Rosen, "Stub Exterior Gateway Protocol", RFC-888, BBN Communications Company, January 1984.

[2] Rosen, E., "Exterior Gateway Protocol", RFC-827, Bolt Beranek and Newman, October 1982.

[3] Hinden, R., and A. Sheltzer, "The DARPA Internet Gateway", RFC-823, Bolt Beranek and Newman, September 1982.